



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

*Meeting for Business, Aug. 31, 1847.*

MR. CASSIN in the Chair.

The Committee on the following papers by Dr. Leidy, read 17th and 24th inst., reported in favour of publication in the Proceedings.

*Description and Anatomy of a new and curious sub-genus of Planaria.*

BY JOSEPH LEIDY, M. D.

In October, 1840, Prof. S. S. Haldeman published a description of an animal under the name of *Planaria gracilis*.\* Upon examination I detected such a remarkable peculiarity in the digestive apparatus as led me to investigate its anatomy in detail, and to form for it a separate sub-genus, characterised as follows:

*Phagocata*, oblonga, plano-convexa, nuda, contractilis, mucosa, antica auricularia. Aperturæ duæ, ventrales, ad os et generationem pertinens. Proboscides multæ.

*P. gracilis*, nigricans, lateribus parallelis, postero acuto abrupte, plerumque antico recto; oculis duobus. Long. 9 lin., lat. 1 lin. Habitat in fontibus Pennsylvaniae.

*Description.* Oblong, limaceform, naked, convex superiorly, flat inferiorly, very contractile; sides ordinarily parallel, convex when the animal is in a contracted state, convergent anteriorly when elongated; anterior extremity with a lateral triangular auricular appendage, straight in front, by contraction becoming convex or concave; posterior extremity abruptly pointed; ocelli two, anterior composed of an oblong, semi-transparent (nervous?) mass with an intensely black dot of pigmentum at the internal posterior part; ventral apertures two; oral aperture a little less than one-third the length of the body from the posterior extremity, and very dilatable; generative aperture half-way between the oral aperture and posterior extremity. Colour black or iron gray, and some younger specimens latericeous.

This animal I have only found in abundance in the neighborhood of Prof. Haldeman's residence, near Columbia, Pa. In a spring in front of his house, thousands of them may be seen gliding along the bottom; some of them occasionally creep up the sides to the surface of the

---

\*Supplement to number one of "A Monograph of the Limniades, or Fresh-water Univalve Shells of North America," containing descriptions of apparently new animals in different classes, &c. By S. S. Haldeman. Philadelphia, 1840.

water, turn upon the back, and by making the ventral surface concave, float about in the manner of the *Limniadæ*. It appears to be carnivorous in habit, or at least it attaches itself to animal matter, dead or living, in preference to vegetable matter. When irritated, it throws out a considerable quantity of very tenacious mucus.

In structure it appears to be intermediate between the entozoic *Distomata* and the annulose *Hirudinæ*. I could not detect any trace of annulation, but I think that this alone would hardly be sufficient to place it lower than the latter animals, because, in a closely allied animal, the *Gordius aquaticus*, although there is no annulation in the perfect animal, yet in the embryo state I find it to exist.

The whole animal is composed of a delicate granular structure: the only approach to muscular fibre is in the longitudinal striation of the integument rendered more distinct by the pigmentum nigrum, a radiated appearance around the oral orifice, and a faint transverse and longitudinal arrangement of the granules entering into the composition of the proboscides, seen more or less distinctly in the continued movements of these organs when slightly compressed beneath the microscope.

The digestive cavity presents the same dendritic arrangements as in *Planariæ* generally,\* but instead of possessing a single sucker or proboscis, the full grown animal has not less than twenty-three; varying, however, in this respect from three upwards, according to the age of the animal. One of these proboscides joins the digestive cavity at the posterior part of the anterior division, as usual, the others join the remaining two divisions at their internal side in their course backwards. They are considerably longer, but narrower than in *P. lactea*,† and when not in use are closely packed together within the animal, so that when the latter is placed beneath the microscope and slightly compressed, they will be seen pressing upon one another in such a manner, that if one changes its position, it will be instantly occupied by another. Those which are formed last are smallest, but they soon gain their full size.

When the animal feeds, the whole of them are protruded from the oral orifice, the longest extending out full one-third the length of the body. As they are all convergent to the same orifice, when fully protruded the animal becomes puckered up and increased in breadth at the expense of the length. In this state the anterior extremity is erected and the posterior brought nearly to a right angle with it, so that it looks as if sitting upon its prey apparently unconcerned, with its pro-

---

\*Duges, An. Sc. Nat. †lb.

boscides, which writhe and twist about as if they were totally distinct organisms.

If one of these animals be punctured or cut, one or more of the proboscides will be immediately protruded as if they existed under pressure, and will move about in all directions appearing as if entirely without the control of the animal; or if one of the animals be crushed between two slips of glass so that the proboscides will be torn from their attachment, they move about involuntarily, always in a line forwards or towards the mouth, which they do by contracting the stomachal extremity towards the oral, the latter remaining fixed. In this progressive course they constantly contract and dilate; the mouth opens and any matter in its vicinity rushes in, when it is closed and the matter passes onwards, and by the alternate contraction and dilatation of different parts of the same tube, it is thrown backwards and forwards several times, and finally violently expelled at the torn extremity. When they have escaped from the ruptures of the tegument produced by crushing, or when snipped off with a pair of scissors whilst an animal is feeding, they will present the same curious phenomena. In fact these curious independent movements caused me at first to mistake the organs for viviparous young, and it was not until I had frequently observed the animal feeding, and examined its structure beneath the microscope, after having fed them upon coloured food, that I was convinced of their true nature.

Excrementitious matter is expelled from the digestive cavity through the same course by which the food enters.

*Circulation.* There appears to be nothing peculiar about the arrangement of the blood vessels, if such they be; the term being applied to two semitransparent lines passing along each side of the ventral surface, and a third along the middle of the dorsal surface, the three freely communicating with each other by transverse lines and numerous smaller branches, the whole forming an extensive reticulation upon the surface of the body. At the anterior part of each ventral line, I distinctly observed a dilatation to exist.

*Generative apparatus.* As in all *Planariæ* the animal is androgynous. The penis is a bulbiform organ placed between the oral and generative orifice with its point directed towards the latter. The point is straight, or contorted; the bulbous portion is also changeable, sometimes elongated, at others flattened or increased in breadth at the expense of the length. The bulb shows through the thin integument, and without close examination may be taken for a third orifice. The penis is perforate, and has a dilated cavity within the bulb. Immediately above the penis I indistinctly observed a somewhat lobated organ, which appeared to join the penis at its base by a narrow por-

tion. This is probably the testicle, for it was the only thing I could discover in connection with the genitalia to correspond to it.

In two individuals only could I see part of the female organs. This consisted in two sigmoid tubes or oviducts, which could be traced from the generative orifice a short distance forwards, one on each side of the penis.

I could detect no traces of a nervous system.

The eyes, so called, have been previously described. It is still a question with many, whether these, as well as the corresponding deep black points existing in very many of the lower animals of the invertebrate series, subserve the purpose of eyes; and some anatomists have even gone so far as to deny the sense of sight to the comparatively perfect eye of many gasteropodous mollusca. The experiments which are made to test the existence of this sense in those organs for the most part are exceedingly fallacious, generally being performed by concentrating the light upon them through a lens. Insects, and even serpents and frogs, I find will frequently bear the impression of a sudden glare of light produced in this way without any inconvenience, at other times they will seek to avoid it, but *Helix albolabris* will occasionally retract its tenticle when so disturbed, and *Phagocata* will frequently raise its anterior extremity and move from the too great light. From their position, which is always such as to be well exposed to the influence of the light, from their structure, imperfect as it is in many cases, and their connection with the nervous system when this exists, I am led to conclude that in all cases they are organs of vision.

The general sensibility of *Phagocata* is very considerable, that is it contracts with great readiness from the slightest disturbance. The contraction has much the appearance of being involuntary and is very like that of the *Medusæ*. When an individual is irritated at any point, contraction commences and thence rapidly extends throughout the animal, and the only appearance of volition is in the effort to escape, but if the touch be too rude, apparently involuntary contraction takes place suddenly and appears to destroy all power of volition for the moment; the animal however soon revives from this state and glides off with its accustomed speed.

Some experiments which I performed upon *Phagocata* confirm the statements that the *Planariæ* are capable of repairing injuries. When an individual is cut into two, both parts after a time become distinct and perfect animals. Division carried to a greater extent in some instances results in as many perfect animals as there are parts, but generally I have found that when cut into more than three or four

pieces, the intermediate pieces are apt to die, and sometimes the extremities do not survive.

I exhibit a drawing of *Phagocata gracilis*, from Prof. S. S. Haldeman.

A drawing of two individuals feeding upon a piece of a *Lumbricus*.

Do., representing a ventral surface with the proboscides protruded.

Do., representing the digestive and generative apparatuses.

Do., representing five of the proboscides highly magnified.

---

*Description of two new species of Planaria.*

By JOSEPH LEIDY, M. D.

*Planaria maculata*. Superiorly convex, faintly blackish or brownish with irregular colorless maculæ; inferiorly flat, colorless; anteriorly trapezoidal; posteriorly spatulate or oval; eyes two, anterior, proximate, composed of a large semi-transparent mass with a reniform mass of pigmentum nigrum at the postero-internal part; oral aperture ventral, one-third the length of the body from the posterior extremity; proboscis large and cylindrical. Length  $2\frac{1}{4}$  lines; breadth  $\frac{1}{2}$  line. Found in moderate abundance, in the ditches below the city, creeping upon the submerged stems of aquatic plants.

Subgenus. Prostoma, Duges. Mouth anterior and terminal.

*Prostoma marginatum*. Blackish, narrow lanceolate, anteriorly truncate; marginate, margin delicately striate; mouth large; proboscis large and oblong; eyes two, anterior, distant, each consisting of two round masses of pigmentum nigrum in contact with each other, and of which one is larger than the other; generative orifice one-fourth the length of the body from the posterior extremity. Length 1 line. A single specimen found with the preceding; but probably not rare, for from its small size, it escaped my notice while collecting some of the former, and it was not until I got home that I detected its existence in the vessel of water containing the others.

The anatomy of *P. maculata* does not differ from that of *Planaria lactea* as given by Duges in the Annales des Sciences Naturelles. In *Prostoma marginatum* the digestive cavity has not the dendritic arrangement of *Planaria*, but merely consists of a large capacious sac extending as far back as the posterior third of the body, and having a cœcum upon each side of the proboscis. The penis has a yellow color and consists of a round granular mass, with a moderately long and bent spiculum projecting from its posterior part. The arrangement of a female apparatus I failed to trace.

---

Amendments to Articles 7 and 8, of Chap. vii. of the By-laws, proposed by Dr. Bridges, were adopted.

These Articles now read as follows :

“ Art. vii.—Members may borrow books, the property of the Academy, from the Librarian, on signing a promissory note for fifty dollars, which shall become void on the book being returned.”

“ Art. viii.—But no works shall be loaned from the Hall, on any account whatever, except those marked with an asterisk (thus \*) in the Catalogue, unless by an affirmative ballot vote of three-fourths of the members present when the application is made; and in case of deposited books the written consent of the depositor having been previously obtained: the name of the borrower and the title of the book to be recorded on the minutes, and security given for its safe return by note or otherwise for the full value thereof, according to the estimate of the Librarian or Library Committee.”

---

On motion of Dr. Leidy, a committee was appointed to examine into the expediency of converting the present lecture room into a portion of the Museum, and also to ascertain what alterations may be necessary for this purpose, &c., and to report thereon as soon as practicable. Committee, Drs. Bridges, Wilson and Morton.